BIO392-cnv-freq

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Step 1: Install package

```
if (!require(devtools)){ install.packages('devtools')
}
```

```
## Loading required package: devtools
```

```
## Loading required package: usethis
```

```
if (!require(pgxRpi)){ devtools::install_github('progenetix/pgxRpi')
}
```

```
## Loading required package: pgxRpi
```

```
library(pgxRpi)
```

Step2: Search esophageal adenocarcinoma NCIt code

C4025

Step3: Access the CNV frequency data from samples with esophageal adenocarcinoma

```
frequency <- pgxLoader(type = "frequency", output = "pgxseg", filters = "NCIT:C3058", codematches=T)
```

The retreived data is an object contaning two slots `meta` and `data`.

The `meta` slot looks like this:

```
frequency$meta
```

```
##         code        label sample_count
## 1 NCIT:C3058 Glioblastoma         4384
## 2      total                      4384
```

The `data` slot includes two matrices.

```
names(frequency$data)
```

```
## [1] "NCIT:C3058" "total"
```

The frequency matrix looks like this

```
head(frequency$data$`NCIT:C3058`)
```

```
##      filters reference_name   start     end gain_frequency loss_frequency no
## 1 NCIT:C3058              1       0  400000          4.174          4.151  1
```

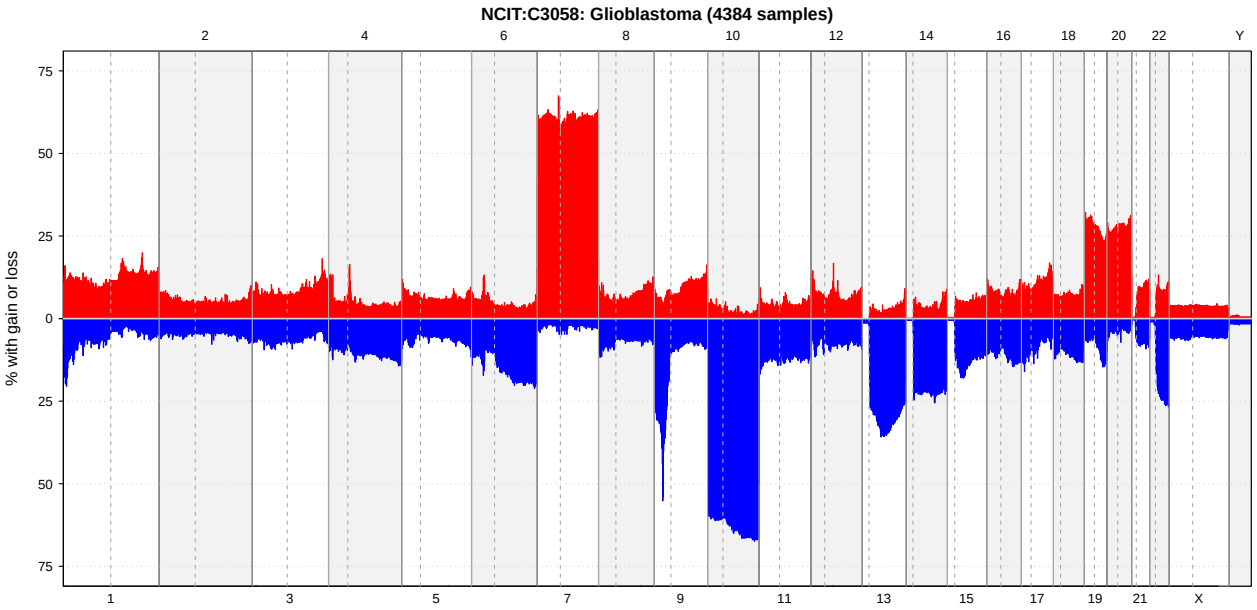
```
## 2 NCIT:C3058              1  400000 1400000          10.903          6.911  2
## 3 NCIT:C3058              1 1400000 2400000          13.047          8.805  3
## 4 NCIT:C3058              1 2400000 3400000          14.690         15.420  4
## 5 NCIT:C3058              1 3400000 4400000          16.036         17.769  5
## 6 NCIT:C3058              1 4400000 5400000          11.747         19.662  6
```

Dimension of this matrix

Step4: Visualize data

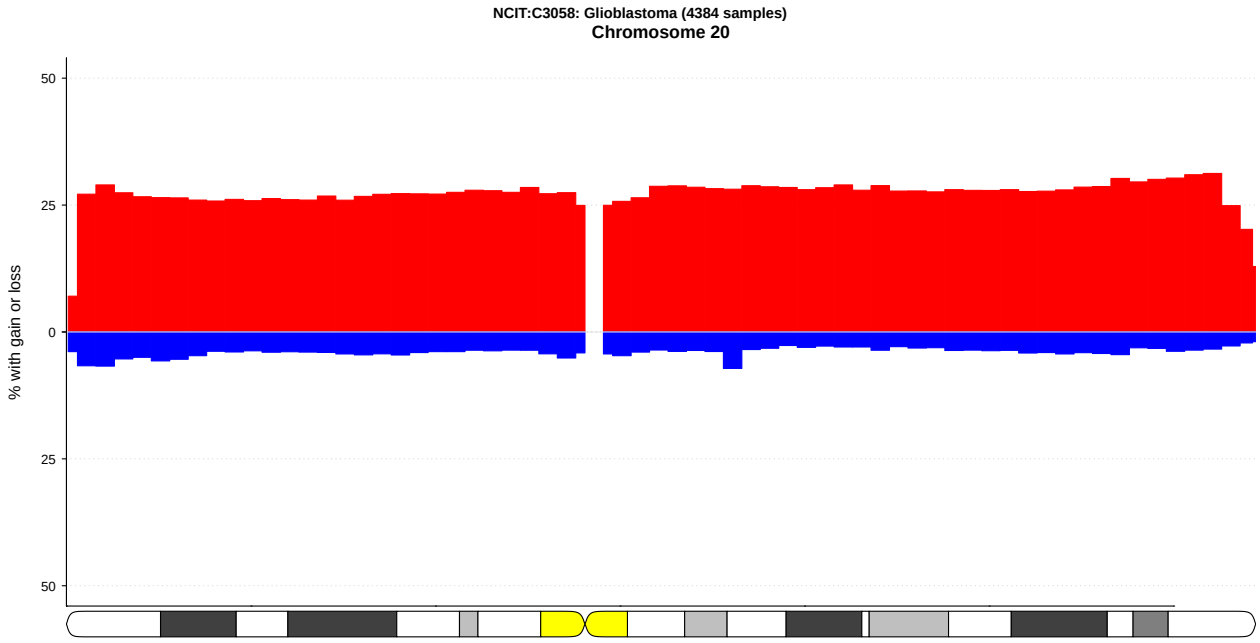
By genome

```
pgxFreqplot(frequency)
```



By chromosome

```
pgxFreqplot(frequency,chrom = 20)
```



Step5: Analyse the data

According the plot, we can see frequenct gains on chromosome 7p, 8q, 20p,20q and frequenct losses on chromosome 4p,4q, 5q, 9p, 17p, 18q, 21q.

There is a literature where the findings are consistent with the majority of mine. Here is the paper-link.

A more detailed use case see this link.
